

and that the compactness of a table of centiles is no hindrance to their wider use. I regret to be unable to learn the proportion of the competitors who were farmers, butchers, or non-experts. It would be well in future competitions to have a line on the cards for "occupation." Certainly many non-experts competed, like those clerks and others who have no expert knowledge of horses, but who bet on races, guided by newspapers, friends, and their own fancies.

FRANCIS GALTON.

#### Ketene.

WHILE engaged in a research on the polymerisation of unsaturated compounds, we were led to try the action of a strongly heated platinum wire on various organic substances. It is unnecessary at this stage to discuss our general results, and we will therefore deal at once with the action of the wire on acetic anhydride. This substance when treated with the hot wire yielded a compound boiling about  $-65^{\circ}$  and freezing about  $-130^{\circ}$ , which on standing at ordinary temperatures condensed fairly rapidly, yielding a brownish-yellow oil which, like the gas, has an extremely pungent smell. We have not yet succeeded in obtaining the new body in a completely pure state, but as our work has been interrupted for some time, we venture to give the following preliminary data.

On exploding one volume of the gas with excess of oxygen, there was a contraction of 1.01 volumes, and 1.85 volumes of carbon dioxide were formed, while 1.86 volumes of oxygen had disappeared. The corresponding numbers for the reaction  $\text{CH}_2 : \text{CO} + 2\text{O}_2 = 2\text{CO}_2 + \text{H}_2\text{O}$  are 1 : 1 : 2 : 2.

Another sample gave a density of 39.9 ( $\text{H}_2 = 2$ ), while that calculated for  $\text{CH}_2 : \text{CO}$  is 42. This sample was, however, far from pure.

The gas is absorbed by all the ordinary reagents, including water. It combines with bromine, and appears to give a crystalline compound with bisulphites. It chars when treated with phosphorus pentoxide or concentrated sulphuric acid. These two reagents themselves produce traces of the gas when they are allowed to act on acetic anhydride. We would add that we have also obtained the substance from acetone, and it seems probable that it can be obtained by our method from all substances containing the group  $\text{--CH}_2\text{--CO--}$ .

We would suggest that the body is the parent substance of Staudinger's ketenes. We hope to be able to publish a fuller communication shortly.

N. T. M. WILSMORE.  
A. W. STEWART.

University College, London, March 25.

#### Technical Terminology.

THE writer on engineering terms in NATURE of March 21 (p. 490) says that a single word is required to denote a central electric generating station.

Perhaps *megadyne* would be acceptable, signifying "great power," and suggestive of the dynamo equipment of the station. As a convenient abbreviation, *mega* would readily enter into common use.

J. T. RICHARDS.

67 Thurleigh Road, Balham, S.W., March 23.

#### HIGHER EDUCATION IN THE UNITED STATES.

THE most recent report issued from the United States Bureau of Education at Washington gives detailed information respecting recent developments of the various grades of education in the States down to June 30, 1904, and in it the Commissioner of Education gives a prominent place to the work of universities and colleges. The statistics now provided make it possible to supplement the article published in these columns (vol. lxviii., p. 25) dealing with university education in the United States, and to give some indication of the progress which has been made in American institutions of higher education during recent years.

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There has been, in the first place, a large increase in the number of students attending universities and colleges in the United States. Whereas in the year 1899-1900 the total number of men students was, roughly, 61,800, and of women students 25,300, the numbers in 1903-4 had become, for men, nearly 72,000, and for women nearly 31,000.

The number of professors and instructors has increased in a similar manner. In 1899-1900 the number of such teachers in institutions for men and for both sexes was 12,664 men and 1816 women; in 1903-4 these numbers had become 15,342 men and 2272 women. In institutions for women alone the increase is not so decided. The number of men teaching in these institutions was in the former year 697, and in 1903-4 only 631. The number of women, however, shows a marked increase from 1744 to 1834.

It is interesting and instructive, too, to study the rise and fall in the popularity of the various subjects taken up by students. At the two periods under comparison there were some remarkable differences. In 1899-1900 the number of students studying classics and other subjects of general culture (as the report calls it) was roughly 57,000, but in 1903-4 the number had reached 65,000. In the earlier year the number of students in classes of pure or applied science was well on towards 26,000; in 1903-4 this number had increased to 32,000. The relative popularities of humanistic and practical studies may be said to have undergone little change at institutions of the rank under consideration. But in this connection it must be remembered that at the great technological institutions, which are not included in these statistics, large numbers of men are engaged entirely in studying branches of applied science.

The total value of property possessed by the institutions for higher education in the United States amounted in 1899-1900 to about 72,120,000 $\text{l}.$ , and in 1903-4 this large sum had increased to 93,043,000 $\text{l}$ . The endowment funds in the former year were valued at 33,240,000 $\text{l}.$ , while in the latter year this provision for future contingencies had grown to 41,313,000 $\text{l}.$

The value of gifts and bequests received by institutions for higher education during 1899-1900 was 2,399,000 $\text{l}.$ ; in 1903-4 the amount had increased to 2,740,000 $\text{l}.$ ; and last year as much as 5,000,000 $\text{l}.$  was raised in this way. Twenty-five institutions in the former year received from private donors gifts of as much as 20,000 $\text{l}.$ , and in 1903-4 as many as twenty-nine institutions were equally fortunate.

For the first of the years with which we are concerned in this comparison, the total income, excluding benefactions, amounted to 5,712,000 $\text{l}.$ , of which about 2,234,000 $\text{l}.$  was received in the form of tuition and other fees. In 1903-4 the total income had reached 8,066,000 $\text{l}.$ . In connection with this sum, the Commissioner for Education remarks:—"It is a well-known fact that the income derived from fees received from students forms only about one-third of the total income, the remainder necessary to meet the expenses of the institutions being derived from endowment funds, State aid, and miscellaneous sources."

In 1903-4 the State and municipal aid to higher education amounted to 1,984,600 $\text{l}.$ , as compared with 893,000 $\text{l}.$  in 1899-1900.

It is thus seen that the striking disparity between public and private efforts in behalf of higher education in the United States and Great Britain, pointed out in the article to which reference has already been made, has, in the interval of four years with which we are here dealing, become more accentuated; and, instead of having made up leeway, we appear to have fallen even further behind.

The annual amount raised by private munificence for American universities and colleges has in a few years been doubled; and, as recent notes in these columns have shown, there is no sign of any decline in the generosity of the men of wealth in the States. The amount of money raised in this way in the United Kingdom during the period 1871-1901 was only one-eighth of that contributed in the United States in the same time; and if the present scale of American gifts be continued, the comparison at the end of 1931 will be such as to leave us at a still more hopeless disadvantage.

All the statistics here brought together tell the same story; alike as regards number of students, number of university teachers, total value of university property and total annual income, from whatever point of view looked at, there is evidence of a strong and healthy growth in the system of higher education in the United States; and, though it can by no means be suggested that similar work in this country has remained stagnant, the most optimistic student of British affairs will hardly maintain that our universities and colleges can show progress and development at all commensurate with that the report of the Commissioner of Education reveals as true of the United States. It is clear that patriotic men of science among us cannot afford to relax their efforts to increase the efficiency of our universities and colleges, and to supplement their number. Students of science do not need to be reminded of the intimate connection between cause and effect, but it behoves them to take every opportunity to convince statesmen and the public that industrial supremacy is, in the long run, one of the effects of an adequately equipped and generously endowed system of higher education.

A. T. S.

#### THE ASIATIC SOCIETY OF BENGAL.

THE Asiatic Society of Bengal, since its foundation in 1784 by that pioneer of oriental studies, Sir W. Jones, has played a leading part in the exploration of the natural history, philology, antiquities, and other branches of scientific inquiry connected with the East. Its Journal has been enriched by contributions from many eminent authorities, among whom may be named, in addition to its founder and older scholars such as H. H. Wilson, Prinsep, Sir A. Cunningham, Jerdon, Blyth, and Ball, men like Drs. Hoernle, Grierson and Annandale, Messrs. T. H. Holland and V. A. Smith, who are happily still at work. Like all scientific organisations in the East, it has suffered vicissitudes. The short and broken residence of Europeans in the country, pressure of official work, lack of native co-workers, want of libraries of reference, and last, not least, the indifference of the Indian Government, which prefers that its servants should devote their spare time to the judgments of the High Courts or the circulars of the Board of Revenue rather than to the science and literature of the country, have at times interrupted its progress. But under its present managers it seems to be inspired by a new spirit of enthusiasm. Its membership has increased within the last year by more than 50 per cent.; the Indian Government has at last begun to regard it seriously, and through the Lieutenant-Governor of Bengal, who now acts as president, has suggested a scheme for bringing its work into closer relation with that of European officials.

These gratifying signs of progress are reflected in its new publications. Besides its well-known Journal, it has commenced the issue of a series of monographs prepared by competent writers, well illustrated, and sold to the public at a very moderate price. These

memoirs cover a wide range in the fields of natural science, philology, and anthropology. Among the most energetic naturalists is Dr. N. Annandale, the author of "Fasciculi Malayenses" and a study of primitive life in the Hebrides and Orkneys, who has now found a fresh field of activity as curator of the fine Calcutta collections. It is one of the ironies of fate that his name will survive in the scientific literature of the future linked with that of a new species of earwig, *Anisolabis annandalei*. He has recently contributed to the Journal a valuable series of papers on the fresh-water fauna of India, special monographs on Malaysian barnacles and the common Hydra of Bengal, and has opened an almost new field of study in his monograph on the "Fauna of a Desert Tract in South India," Rāmanād, in the Madura district, a region which might naturally, for zoological purposes, be regarded as worked out, but where his trained eye has discovered much new and interesting material.

In anthropology the society is judiciously working in connection with the Ethnographical Survey recently revived and extended by Lord Curzon, and has received from it several valuable communications. Mr. Sherring, who recently published an account of explorations in western Tibet, gives a further account of the Bhotiyas, and Mr. A. H. Francke of the Dards of the same region; the late Father Dehon, S.J., describes the religion of the Uraons of Bengal, and Mr. E. H. C. Walsh discusses the remarkable cup-mark records in the Chumbi Valley. Here, again, Dr. Annandale has made a new departure in the first of a series of notes dealing with the arts, industries, and implements of the more primitive tribes, which describes the blow-gun, which seems to have been imported into southern India by the Malays. Studies such as these will, we trust, lead to the foundation of an Indian Pitt-Rivers museum, the ample materials for which at present in existence will soon disappear unless their collection is taken up in earnest.

In another direction the society has started a valuable work by establishing a medical section, which proposes to organise the workers now engaged in the study of tropical disease. In this connection the monograph by Messrs. Hooper and Mann on earth-eating, already described in NATURE (vol. lxxiv., p. 543, September 27, 1906), is full of interest. This remarkable craze appears to be spreading rapidly among the coolies in tea-gardens in Assam, and the dangers resulting from the practice are attracting serious attention. It is not a racial characteristic, but is found in all parts of the country; it appears to depend on the purely mechanical effect of various kinds of earth in relieving gastric or intestinal irritation. When once indulged in, the craving becomes uncontrollable, and leads to serious disease of the digestive canal.

All classes of students will accept these new publications as a record of excellent scientific work, and will congratulate this historic society on its recent satisfactory progress.

ROBERT WARINGTON, F.R.S.

WE regret to learn of the death of Mr. Robert Warington, F.R.S., at Harpenden on March 20. Mr. Warington was the son of Robert Warington, F.R.S., for a long time chemist for the Society of Apothecaries, and was born in 1838. Being of delicate health, he was educated entirely at home, and learnt his first chemistry from his father. In 1859 he worked for some time as a voluntary assistant in the Rothamsted Laboratory, and in 1862 went to the Royal Agricultural College at Cirencester as assist-